

## **Sewer Cleaning**

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**Focus Area:** Operational Excellence  
**Strategic Objective:** Service quality  
**Owner:** John Holmes

### **Summary of proposed action**

Increase the percentage of sewer pipes on maintenance and cleaning schedules to a best-practice level of 50%. This, combined with the Sewer Inspection and Rehabilitation Action Plan (OE-3), will allow SPU to significantly reduce the risk of exceeding the regulatory maximum of four sanitary sewer overflows per 100 miles of sewer pipe.

### **Description of the problem this action solves**

Currently, only 21% of SPU's 1,416 miles of sewer pipe are on maintenance and cleaning schedules. Baseline additions will increase this to 25%, which is an improvement but still significantly below best practice levels. More than 1,100 miles of pipe are not routinely inspected for safety, leakage, or basic functioning. Pipes are placed on a cleaning schedule after they back up (potentially causing street flooding, property damage, public health issues, or environmental damage), or if maintenance problems are otherwise identified.

Once pipes are on a maintenance schedule, crews are very good at following the schedule (it has been several years since a sewer backup has been caused by missed maintenance), however we are far below best practice levels of pipe maintenance. The number of annual backups is approaching the regulatory maximum of four backups per 100 miles of pipe.

### **More detailed description of the proposed action**

This proposal increases the percent of our total sewer pipe infrastructure that will get routine maintenance to 50% by 2020.

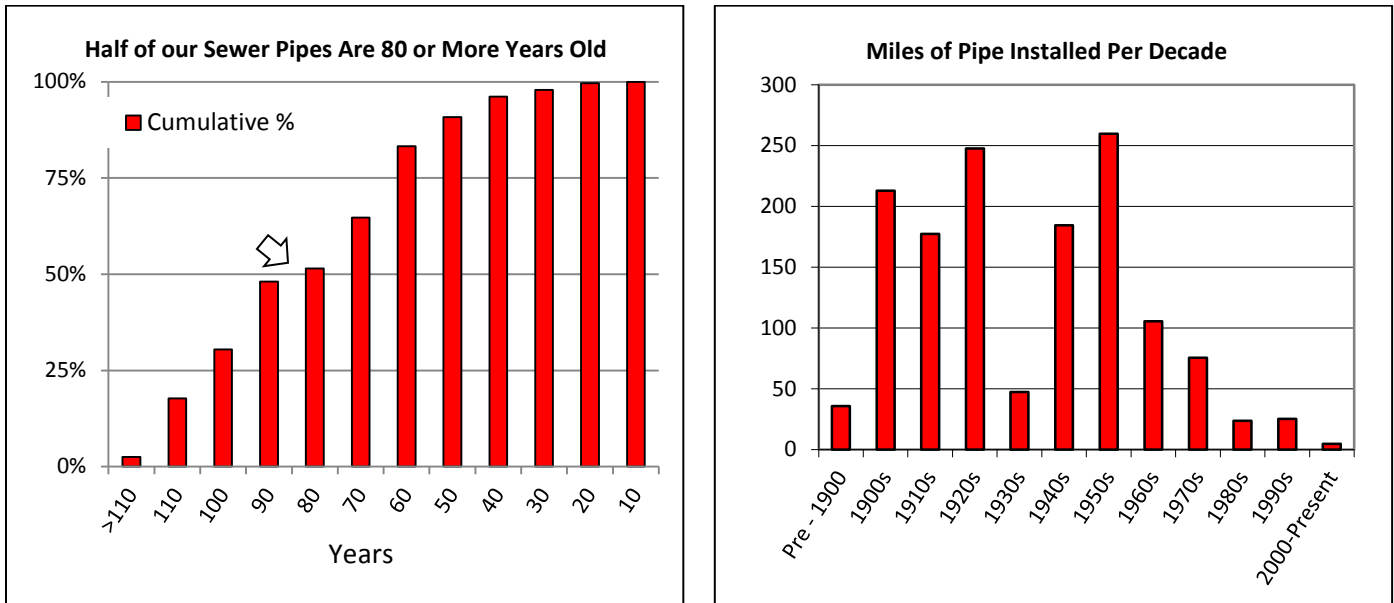
At an average age of 80 years of age, regular pipe maintenance and cleaning are required to keep the overall system functioning well. (See graphs, below).

A benchmarking study suggests having 50% of our pipes on a cleaning and maintenance schedule. We project that expanding routine maintenance and cleaning to 50% of our pipes by 2020 will reduce overflows from the current 3.8 annual overflows per 100 miles of pipe to about 2 overflows per 100 miles of pipe.

Moving from 25% of pipes to 50% of pipes on a maintenance schedule will require targeted assessment and selection of at-risk pipes – this will be supported by inspection crews using Closed Circuit Television (CCTV), as described in the Sewer Inspection and Rehabilitation Action Plan.

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Figure 1.  
 50% of SPU's sewer pipes are more than 80 years old



### Staffing

Currently 21 wastewater field employees are cleaning and maintaining sewer pipes. Assuming current levels of productivity by field crews, this proposal adds 14 wastewater field employees by 2020. However, this increase is largely offset by efficiency measures being undertaken over the same time period.

- Through increased productivity, we expect to decrease the number of wastewater field employees by 13 positions by 2020. This assumes increasing the average number of jobs per day from the current 3.5-4 jobs per day per crew to 8 jobs per day per crew. Furthermore, this assumes SPU builds a south-end grits facility, funding for which is included in the baseline CIP budget.
- Overall, between this proposal and the offsetting productivity gains, we expect to increase a net increase of one (1) wastewater field employees by 2020, relative to the baseline.

Changes in staffing for Sewer Pipe Cleaning	2015	2016	2017	2018	2019	2020
Baseline staffing levels	21	21	25	25	25	25
Plus adds in this Action Plan	9	12	13	13	14	14
Less efficiencies from increased productivity	-6	-9	-13	-13	-13	-13
New staffing levels	24	24	25	25	26	26

### Equipment

This additional staff requires the purchase of two vactor trucks (\$500K each); the trucks have a 5-year life expectancy and annual operating costs of \$182K.

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### Benefits of the proposed action

The benefits of this proposal are threefold:

- ✓ It lowers our risk of exceeding above our regulatory maximum for sanitary sewer overflows; if this maximum is exceeded, we risk losing the flexibility the Environmental Protection Agency (EPA) and the State Department of Ecology (WSDOE) have given us to deal with water quality problems.
- ✓ It funds a reasonable level of annual pipe maintenance, thereby avoiding large, unplanned costs in the future.
- ✓ It reduces the impacts of flooding and backups on our customers.

### Implementation plan and timeline

	2015	2016	2017	2018	2019	2020
Staff level increases over the years to achieve 50% target in 2019 (see budget table below to see staff costs (O&M Labor) increasing over time)	x	x	x	x	x	x
Purchase vector trucks	x					

### Budget and FTE Changes (in \$000s)

Fund: Drainage & Wastewater

	2015	2016	2017	2018	2019	2020	Total
O&M Labor*	\$900	\$1,200	\$1,300	\$1,300	\$1,400	\$1,400	\$7,500
O&M Non-Labor	\$182	\$182	\$182	\$182	\$182	\$182	\$1,092
<b>O&amp;M Subtotal</b>	<b>\$1,082</b>	<b>\$1,382</b>	<b>\$1,482</b>	<b>\$1,482</b>	<b>\$1,582</b>	<b>\$1,582</b>	<b>\$8,592</b>
CIP	\$1,000						\$1,000
<b>Total O&amp;M and CIP</b>	<b>\$2,082</b>	<b>\$1,382</b>	<b>\$1,482</b>	<b>\$1,482</b>	<b>\$1,582</b>	<b>\$1,582</b>	<b>\$9,592</b>
FTE	9	12	13	13	14	14	

\*The anticipated productivity/efficiency improvements, described above, largely offset these staff increases.

### Plan for evaluating success or progress

SPU will use the following metrics to evaluate the success of this proposal:

- Average # jobs per day per crew. The target is 10 jobs per day per crew. In 2013, the actual number of jobs per day per crew is 6 jobs.
- Number of sewer backups per 100 miles of pipe. The regulatory maximum is 4 overflows per 100 miles of pipe per year. In 2013, the actual number of overflows per 100 miles of pipe was 3.7. An annual average closer to 2 overflows per 100 miles of pipe will significantly lower the probability of exceeding our regulatory maximum.